

**CENTRE OF STUDIES FOR BUILDING SURVEYING
FACULTY OF ARCHITECTURE, PLANNING AND
SURVEYING
UNIVERSITI TEKNOLOGI MARA**

**PASSIVE NOISE CONTROL DESIGN FOR RESIDENTIAL
BUILDING NEAR HIGHWAYS**

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**Academic Project submitted in partial fulfilment of the
requirements for the degree of
Bachelor of Building Surveying (Hons)
Centre of Studies for Building Surveying
Faculty of Architecture, Planning & Surveying**

JUNE 2015

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**“I hereby declare that this academic project is the result of my own
research except for the quotation and summary which have been
acknowledged”**

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Date : July 10rd , 2015

ACKNOWLEDGEMENT

I am grateful to the ALLAH for the good health and wellbeing that were necessary to complete this academic project. I wish to express my sincere thanks to the faculty for providing me with all the necessary facilities for the research.

I am also grateful to my supervisor Cik Nurmahfuzah bt Mohd Jamil who has supported me throughout my thesis with his patience and knowledge whilst allowing me the room to work in my own way. I am extremely thankful and indebted to her for sharing expertise, and sincere and valuable guidance and encouragement extended to me.

I take this opportunity to express gratitude to all of the Department faculty members for their help and support. I also thank to my parents Puan Fauziah binti Mat zain for the unceasing encouragement, support and attention. I am also grateful to my partner who supported me through this venture.

I also place on record, my sense of gratitude to one and all, who directly or indirectly, have lent their hand in this venture.

ABSTRACT

Noise is derived from the Latin word “nausea” implying ‘unwanted sound’ or ‘sound that is loud, unpleasant or unexpected’. The noise originates from human activities, especially the urbanization and the development of transport and industry. The passive method is a simple approach which includes the use of absorbers, barriers to reduce the interior noise in an enclosure. For enclosure structures on passive vibration noise control, the vibration and the noise are reduced either by adding appropriate passive elements or by modifying the system. It also can use the method to reduce noise such as acoustical site planning, architectural design, construction method and barrier construction. With use the soundproof window will reduce noise levels by 75-95%. More than 90% of all the exterior noise comes in through the door and window. Glass or Acrylic interior windows for maximum sound control, an 80% sound reduction and more can be had over the performance of the prime window. This research was conducted to investigate the method use to absorb noise in residential area/ building, to identify affect of sound pollution to the occupant, to identify the materials for noise control in residential building and to recommend the best method for noise control in residential area/ building. The opinion and views of related parties in the residential areas near highways were obtained from questionnaire and equipment in case studies which have been identified to give a clearer picture of the situation of the noise pollution and find the ways to reduce noise in residential building near highways

CHAPTER 1

INTRODUCTION

1.1 Introduction

In the recent years, noise control has become a significant factor in the design (Barbara Tiseo and Antonio Concilio, 2011). Noise is derived from the Latin word “nausea” implying ‘unwanted sound’ or ‘sound that is loud, unpleasant or unexpected’. The noise originates from human activities, especially the urbanization and the development of transport and industry (Narendra Singh and S. C. Davar, 2004).

According to Margaret Rouse (2014) noise is unwanted electrical or electromagnetic energy that degrades the quality of signals and data. Noise occurs in digital and analog systems, and can affect files and communications of all types, including text, programs, images, audio, and telemetry (Margaret Rouse , 2014).

In the September 2009 Environmental Health Journal article, Bodin states that older people may not be as vulnerable to the negative effects of road traffic noise because the ability to detect changes in noise decreases with age and Bodin added that age groups may perceive noise annoyances differently. A study published in Science Daily in February 2008 found that continual exposure to noise levels above 50 decibels can increase the risk of heart attacks by 40%.

Noise emanates from a variety of sources, examples of sources include Industrial, Commercial and leisure, domestic, construction, transport and street noise. Industrial noise are from agricultural, manufacturing, workshops, transport noise are